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Charting a course to an emerging field of 'research engagement studies': A conceptual meta-synthesis

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Abstract

The past decades in the UK have witnessed renewed interest by policymakers, research funders and research institutions in the engagement of non-academic individuals, groups and organizations with research processes and products. There has been a broad consensus that better engagement leads to better impact, as well as significant learning around understanding engagement and improving practice. However, this sits in tension to a parallel trend in British higher education policy that reduces the field to a narrow definition of quantitatively measured impacts attributed to individual researchers, projects and institutions. In response, this article argues for the mobilization of an emerging field of 'research engagement studies' that brings together an extensive and diverse existing literature around understandings and experiences of engagement, and has the potential to contribute both strategically and conceptually to the broader impact debate. However, to inform this, some stocktaking is needed to trace the different traditions back to their conceptual roots and chart out a common set of themes, approaches and framings across the literature. In response, this article maps the literature by developing a genealogy of understandings of research engagement within five UK-based domains of policy and practice: higher education; science and technology; public policy (health, social care and education); international development; and community development. After identifying patterns and trends within and across these clusters, the article concludes by proposing a framework for comparing understandings of engagement, and uses this framework to highlight trends, gaps and ways forward for the emerging field.

Keywords: research engagement; higher education policy; research impact; collaborative research; science and society; knowledge-to-action; the United Kingdom.

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Key messages

- In the UK, research engagement is often conflated with (or subsumed under) an instrumental understanding of research impact. However, understandings of engagement have evolved in different ways in different domains of policy and practice.
- Comparing understandings within and across these domains helps to identify key conceptual patterns and trends relating to the ways in which engagement is configured, located and analysed.
- These patterns and trends provide a map of the emerging field of research engagement studies, highlighting existing trends and identifying gaps with opportunities for further research. Such a field of study might provide an invaluable resource to locate and contest dominant understandings of research impact and knowledge exchange.

Introduction

How do the public (or the public and third-sector practitioners who represent and serve the public) get involved with research? Should they have a say in the type of research that is funded? How can they participate in the production, communication and evaluation of research? What obstacles prevent them from accessing, adapting and using pre-existing research? And why is it in the interest of professional researchers and research institutions to support their engagement with research?

Over the past decades, the UK has witnessed renewed interest in research engagement. Research institutions and funders are recognizing that the *impact* of research in wider society can be improved by engaging users and mediators in research processes as well as with research outputs (HEFCE *et al.*, 2011, 2017; Nurse, 2015; NESTA/Alliance for Useful Evidence, 2016). This has called into question the relevance of existing research systems, relationships, roles and products, with implications for what should count as 'researcher development' (for example, Enright and Facer, 2016; Weller, 2011, 2014; Holliman and Warren, 2017). In response, there has been an explosion of studies and initiatives from fields as varied as higher education studies, science communication, cultural heritage, performance arts, museum studies, design, health and social care, education, international development, management, sustainability science, geography and political science. Through interrelated concepts such as public engagement, community-based research, research partnerships, co-production, science communication, public understanding of science, citizen science, practitioner research, practice research, public scholarship, and knowledge transfer, or translation, or diffusion, or exchange or mobilization, these fields have developed theories, models and frameworks for understanding and improving engagement, as well as numerous examples of how engagement unfolds in practice and interacts through its different discourses with institutional policy.

These studies and initiatives reveal the many benefits of research engagement, summarized in a recent editorial in *Research for All* as substantive, normative and instrumental (Duncan and Oliver, 2017: 230): good engagement has the potential to improve the quality of research (including, as several authors point out, epistemological *ways of knowing* and ontological *ways of being* – see, for example, Oswald, 2016; Facer and Pahl, 2017; Hall and Tandon, 2017); to contribute to fairer and more equitable

research morals (for example, Nind, 2014; Holliman, 2017); and to improve the effectiveness of research governance, production, communication, uptake, adaptation and ultimately use (for example, NESTA/Alliance for Useful Evidence, 2016).

However, challenges remain. Research into engagement remains 'highly dispersed – scattered across multiple disciplines, adhering to different values, using different methods and mobilizing different research traditions, making it hard for people to discover and draw upon each other's work' (Facer *et al.*, 2012: 1). While this multiplicity is an inevitable consequence of the breadth of a field that is 'by its very nature characterised by the diversity and plurality of its actors, both within and outside the university' (Watermeyer and Lewis, 2015: 52), it raises issues for access, communication and learning across disciplines, fields and sectors. There is also a danger that approaches to engagement become divorced from their roots, cobbled together opportunistically and hammered into programmes and/or policy to serve instrumental purposes without adequate consideration of the contexts and agendas that defined and nurtured them. Such conceptual incoherence runs the risk of undermining the emerging body of research into research engagement – both as a robust field of study and as a legitimate response to the impact agenda. With the encroaching commodification of the UK's higher education sector (for example, Holmwood, 2010; Brewer, 2013; Docherty, 2015; Warner, 2015; Sayer, 2015), critics have lambasted the interpretation of 'impact' by mechanisms such as the Research Excellence Framework (REF), which have tended to privilege quantitative measures of largely economic outcomes and attribute change to individual researchers, projects and institutions as opposed to collaborative relationships and processes (see Kania and Kramer, 2011; Pain *et al.*, 2014, 2015; Pickerill, 2014). This trend is likely to be amplified by the upcoming Knowledge Exchange Framework (KEF), with its narrow focus on the commercialization of research in line with the British government's new industrial strategy (BEIS, 2017). Against this latest iteration of research impact, there is a timely need to mobilize a broader set of understandings of the purposes, participants, processes, practices and products of research impact and engagement.

However, 'one of the major issues for [public engagement with higher education] is the lack of a recognized academic discourse, literature and/or space(s) for critical discussion' (Watermeyer and Lewis, 2015: 53), which has led to many academics seeing research engagement as an institutional and administrative set of activities, rather than rooted in academic theory and practice (see Watermeyer, 2011).

In response, this article argues that in order to mobilize an emerging field of research engagement studies as a legitimate space (for thought, practice and activism) there is a need to first take stock of the conceptual roots of the literature as it has evolved in different domains of policy and practice; and, second, to chart out the common themes, approaches and framing that run across it. In the UK, a number of initiatives have started to map different disciplinary or sector-based approaches to research engagement (see, for example, Facer *et al.*, 2012; Fazey *et al.*, 2013; Stahl *et al.*, 2013; Munck, 2014; Burchell, 2015; Davies *et al.*, 2015; Watermeyer and Lewis, 2015; Facer and Enright, 2016; Oswald, 2016; Shucksmith, 2016), and organizations such as the National Co-ordinating Centre for Public Engagement (NCCPE) have worked hard to draw together such diverse resources. But to date, there has been no attempt to provide a broad overview of these different approaches and to identify the trends across them.

In response, this article develops a conceptual meta-synthesis of understandings of research engagement (conducted as part of a broader study funded by the Leverhulme Trust, which examines research engagement from the perspective of

civil-society practitioners) that incorporates literature from a range of academic fields and sectors of policy and practice. After outlining the methodology of the review, it then goes on to map the evolution of understandings of research engagement in the context of five distinct but interrelated UK-based policy domains. The final section of the article draws on a comparison of the themes, approaches and framings identified across these domains to propose a framework for comparing understandings of engagement, and concludes by using the framework to highlight trends, gaps and ways forward for the emerging field of research engagement studies.

Methodology

The literature on research engagement spans numerous academic disciplines and fields of study, as well as sectors of policy and practice. It includes a multitude of terms, theoretical underpinnings, methodological approaches and empirical sites. Its authors are often academics, but also practitioners, policymakers, consultants and activists – sometimes working in collaboration and sometimes alone in the contexts of their own organizations and professional sectors. It takes a range of forms from peer-reviewed articles to project reports, toolkits, manifestos, blogs and personal reflections. The term 'literature' implies *written texts*, however resources that communicate understandings and experiences of engagement have also taken more creative and embodied forms (see, for example, Back and Puwar, 2012; Facer and Pahl, 2017).

Charting a route through this vast terrain is a daunting task. There are many existing literature reviews that focus on different elements of research engagement (for example, Hanley and Vogel, 2012; Stahl *et al.*, 2013; Munck, 2014; Watermeyer and Lewis, 2015; Oswald, 2016) and are framed by largely normative and pragmatic decisions about what to include or exclude, based on the expertise and interests of the reviewer. Other approaches are grounded in a more 'systematic' review methodology (for example, Davies *et al.*, 2015; Shaw *et al.*, 2014) and operate within clearly defined parameters, establishing strict criteria to search for and select the relevant sources. Still others (for example, Aniekwe *et al.*, 2012; Facer *et al.*, 2012; Fazey *et al.*, 2013; Burchell, 2015; Davies *et al.*, 2015; Shucksmith, 2016) have taken a more consultative approach, inviting experts from different fields to contribute resources, and convening participatory workshops to establish common frameworks and agendas.

The study that forms the basis of this article drew on elements of all three approaches to review and synthesize understandings of research engagement. While a comprehensive and systematic interrogation was not feasible (given the breadth, depth and diversity of the literature), the review attempted to provide a broad-brush account of the conceptual landscape that might constitute an emerging field of research engagement studies. The three key objectives were therefore:

- to map the evolution (or genealogy) of different understandings of research engagement as they emerged within key UK-based domains of policy and practice
- to identify the conceptual patterns and trends within and across these different domains
- to draw on this analysis to develop an iterative framework for comparing understandings of engagement and identifying commonalities, tensions and gaps to inform a way forward for the study of research engagement.

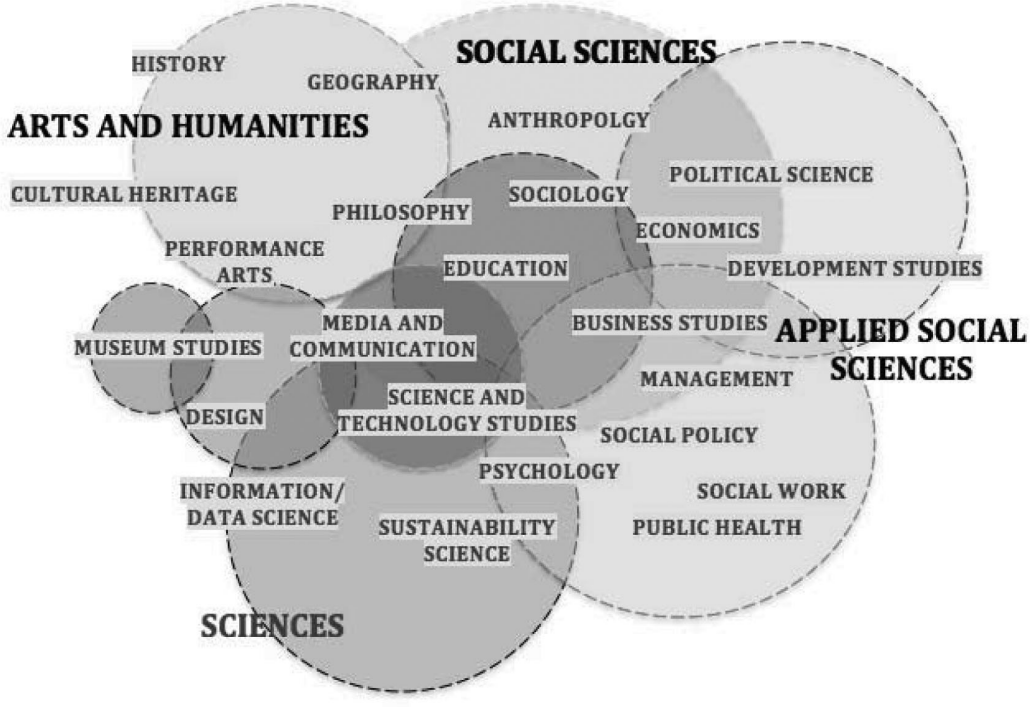
These objectives translated into a methodological approach that was organized into four phases: (1) defining the scope of the review (identifying the conceptual literature and establishing key domains of policy and practice); (2) mapping the evolution of

theories, policies and practice within these domains; (3) mapping key patterns and trends across the domains; and (4) developing an iterative framework for comparing understandings of engagement and charting a way forward for the field of research engagement studies.

Defining the scope of the review and identifying the literature

The review began with a consultation of key informants (n=11) working on research engagement from within a range of disciplines, fields and sectors in the UK: higher education (two academics and one HE practitioner); arts and humanities (two academics); international development (one civil society practitioner and one policymaker); public health (one academic and one public sector practitioner); education (one academic) and science communication (one academic). As well as providing a series of narratives of the state of the art of research engagement in their area, the informants also recommended recent reviews published after 2008 (including syntheses of literature, but also historical overviews of specific sectors of practice). These 19 reviews (set out in Appendix I) were analysed to identify key terminology and conceptual/methodological framings, and to start to map out the (inter)disciplinary/(cross)sectoral landscape of research engagement (see Figure 1), which represented a mixture of disciplinary traditions (for example, public sociology, critical geography and philosophy of education); fields of study (for example, museum studies, cultural heritage, development studies, and science and technology studies) and sectors of applied policy and practice (for example, health and social care, education, management, participatory democracy).

Figure 1: First iteration of the (inter)disciplinary/(cross)sectoral research landscape



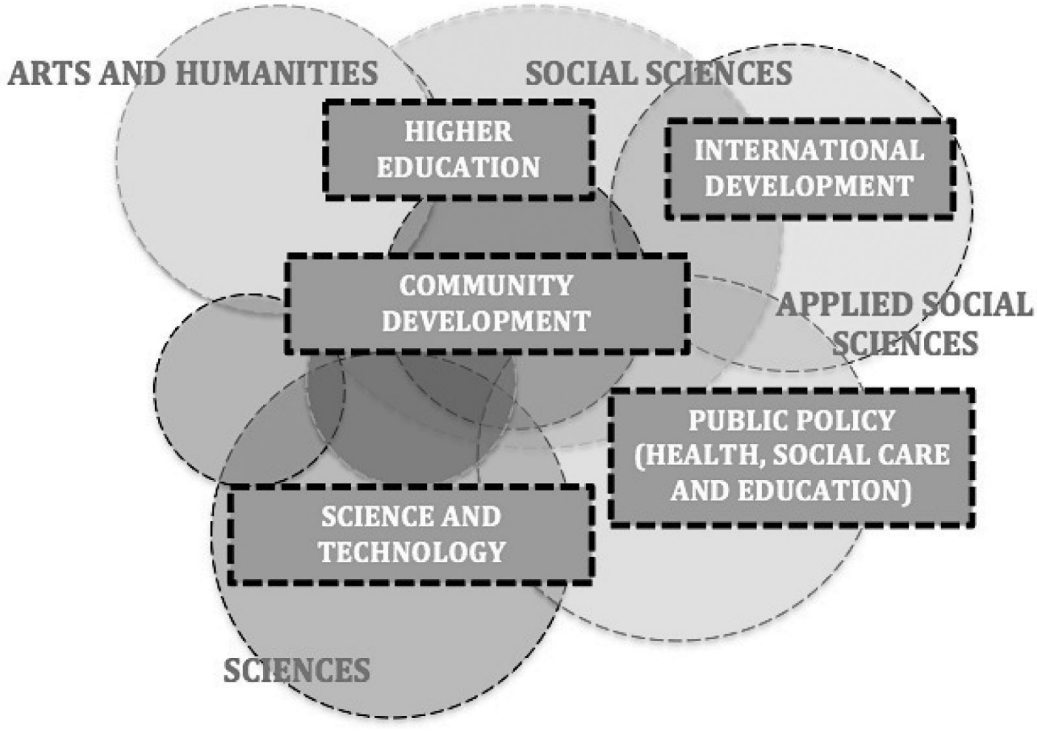
This landscape helped to frame the review and provide prompts for literature searches. Initial spatial and temporal parameters were set to limit the review to a contemporary period (with resources primarily published between 2002 and 2017) and a focus on the

UK (including both resources published by UK-based authors and resources focused on the UK as an empirical site). The review was an iterative process consisting of four search cycles, each contributing to a refinement of the (inter)disciplinary/(cross)sectoral research landscape, and each revision of the landscape contributing to the identification of further resources and terminology for searches. Studies were identified: first, through the 19 review studies set out in Appendix I; second, through recommendations from the advisers; third, through searches in key databases and indices; and fourth, through searches in key journals (for details of search strategies, see Appendix II). This resulted in the identification of 165 theories, models and frameworks of research engagement (see Appendix III). These were analysed according to authorship (academic, practitioner or academic–practitioner collaborations) terminology, theoretical underpinnings and methodological approaches.

Developing a map of evolutions of engagement within key UK-based policy domains

The final refinement of the (inter)disciplinary/(cross)sectoral landscape resulted in the identification of five key domains that represented the five most substantial amalgamations of the literature as well as a series of relatively distinct domains of policies and practices. These domains were: higher education (incorporating elements of management studies); science and technology (incorporating elements of sustainability sciences); public policy (specifically health, social care and education); international development (incorporating elements of political science and third-sector studies); and community development (incorporating elements of geography, arts/humanities and design) – see Figure 2.

Figure 2: Final iteration of the (inter)disciplinary/(cross)sectoral research landscape



While these domains were chosen because they each constitute a key policy area as well as specific sites of practice and interdisciplinary fields of study, the significant overlaps between them should be noted. For instance, higher education is, of course, a component of public policy; international development incorporates elements of science and technology as both a field of study and policy sector; and community development interacts significantly with public policy and shares some influences with international development. However, these domains were all identified as contributing a distinct set of terminologies and approaches, which all evolved in different (though interrelated) contexts of practice. The review focused on developments in each domain from the early 2000s, while providing a broad historical background from the latter half of the twentieth century.

Within each domain, an account of the recent evolution of understandings of research engagement was developed through the following stages: (1) identification of key historical trends in policy and practice; (2) identification of key terminology and approaches to research engagement within different fields of study; and (3) identification of key understandings of research engagement. Drafts of each account were shared with the key informants, and feedback was integrated into the final versions (see the section on evolution of understandings, pp. 191–202).

Developing a framework for comparing understandings of research engagement

The final phase of the review involved comparing the understandings of engagement emerging from the different domains of policy and practice to identify key patterns and trends within and across each domain. This analysis informed the development of an iterative framework to capture and compare the different ways of understanding research engagement (see the section on comparing understandings, pp. 202–8).

Evolution of understandings of research engagement within key policy domains

Since most understandings of research engagement combine an element of theory with an element of practice or policy, it is important to understand the theoretical or conceptual basis of how engagement is understood in the context of its evolution within specific sites of policy and practice. This section provides an overview and comparison of the evolution of different understandings of research engagement in the context of the five UK-based domains of practice, policy and thought: higher education; science and technology; public policy (health, social care and education); international development; and community development.

Higher education

There is a lengthy tradition of writing (particularly from the fields of critical sociology and philosophy of education) on the purpose of 'the university' and its relationship to 'society'. Some of this work has a spatial focus, exploring academia's relation to the 'knowledge society' (for example, Delanty, 2001) or a broader set of social ecologies (Barnett, 2009). Others have conceptualized the university's interrelated functions, either as a holistic model of 'scholarship' (for example, Boyer, 1990, 1996), or as different spheres of academic function in tension with each other (for example, Burawoy, 2012), or through an epochal shift between Mode-1 and Mode-2 knowledge (for example, Gibbons *et al.*, 1994) or the displacement of a 'culture of autonomy of science' by a

'culture of accountability' (Nowotny *et al*., 2001). More recently, a range of studies has explored the physicality and materiality of the university in relation to sociopolitics (for example, Cochrane and Williams, 2013; Temple, 2014). Other studies have focused more normatively on the university as a 'public good' (Marginson, 2007; Calhoun, 2011) and developed metaphors such as 'the civic university' (Goddard, 2009); 'the engaged university' (Watson *et al*., 2011); 'the open university' (Peters and Roberts, 2012); 'open scholarship' (Weller, 2011, 2014); the 'engaged academic' (Cresswell and Spandler, 2013); and 'inclusive research' (Nind, 2014). Still others have focused on the public duty and/or value of different disciplines, for example, 'public sociology' (Burawoy, 2005), 'new public social science' (Brewer, 2013) or the 'public value of the humanities' (Bate, 2011; Belfiore and Upchurch, 2013).

Against this theoretical work, a parallel policy stream has developed the notions of 'research impact' and 'public engagement with research'. As the Research Assessment Exercise (RAE) evolved into the Research Excellence Framework (REF), a new measure of impact (defined as 'an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia') was incorporated into the assessment (REF, 2011). In 2008, the National Co-ordinating Centre for Public Engagement (NCCPE) was established by the Higher Education Funding Council for England (HEFCE), and six further regional hubs were launched as 'Beacons for Public Engagement' to provide a coordinated approach to embedding a culture of public engagement (including recognition, reward and capacity-building) across the higher education sector. While the Beacon initiative ended in 2011, the NCCPE continued to receive core funding from the UK's research councils to embed the findings from the Beacons project within the wider sector, with initiatives such as the Catalysts for Public Engagement supporting this work. However, despite some conceptual work such as the AHRC-funded Researching the Engaged University Project, which brought together the academic and practice-oriented literature on 'university–public engagement' (see Facer *et al*., 2012), critics have identified a divorce between the 'alienating' vision of public engagement put forward by research funders and HE regulators, and academics' own histories of public engagement, which they frame through different terminologies and that link to broader academic traditions (see Watermeyer, 2011). Watermeyer and Lewis (2015) argue that, unlike the more coordinated evolution of similar discourses in other policy domains (for example, the public engagement movement in science and technology), the public engagement agenda in higher education was untheorized, suffered from lack of clarity in terms of its definition both as an activity and a topic for investigation, and subsumed the academic elements of the discourse under the administration of public engagement as a largely non-academic function. These tendencies are exacerbated by a further conflation of research engagement with a broader 'impact agenda', which might promote a more cynical instrumentalism, manifested as an attempt to be seen to be engaged rather than to be engaged for its own sake (Burchell *et al*., 2009; Pain *et al*., 2015).

However, the academic response to the 'impact agenda' has been varied, and this has also generated an additional range of understandings of engagement. While a first group of scholars have embraced the discourse of impact, focusing on establishing instrumentally 'what works' for better impact (for example, Van de Ven, 2007; Conway *et al*., 2009; Hughes and Kitson, 2012; Vostal and Robertson, 2012; Bastow *et al*., 2014), a second group, particularly from the arts and humanities (for example, Nussbaum, 2010; Bate, 2011; Docherty, 2015; Collini, 2012; Warner, 2015) have rallied to defend the university from new commodification and managerial control, arguing for *preservation* of existing structures and processes. According to these authors, a focus on the 'use'

of research is an unhelpful starting point, as universities have an intrinsic 'cultural value' (Bate, 2011) or 'moral virtue' (Nussbaum, 2010). In this way, academic work plays a fundamental role in developing society's 'highest aspirations and ideals' (Collini, 2012: 86), so academic knowledge is a representation of a particular (higher-level) cultural vision for society and, therefore, necessarily detached from the context of its use. In contrast, a third group, of mainly social scientists, have argued that better engagement with society is essential for universities to critically engage with the neo-liberal trend in the impact agenda, critiquing the economic interpretation of impact and the commercialization of research (for example, Holmwood, 2010; Slaughter and Rhoades, 2004; Burawoy, 2012; Brewer, 2013). And, finally, a fourth, assorted, group have tried to generate alternative understandings of impact, for instance, by imagining 'feasible utopias' (Barnett, 2011) and reconceptualizing 'impact' from a feminist or collaborative perspective (for example, Pain, 2014; Pain *et al*., 2015; Facer and Pahl, 2017).

Table 1 summarizes the different understandings of engagement within the higher education domain in relation to the evolution of policy and practice.

Table 1: Approaches to research engagement within the higher education domain

Terminology	Key policy discourses	Key policies and practices	Key fields of study	Key framings
Research impact Public engagement with research University–public engagement Public/cultural value of HE Civic/open/ engaged/inclusive/ ecological/public university/academic Knowledge exchange	Third mission Research impact Accountability Innovation Research exploitation/ commercialization New managerialism Employability	RAE (2004–8) REF (2010–14) NCCPE (2007) Beacons (2008) and Catalysts Pathways to impact KEF (2017–)	Higher education studies Philosophy of education Management Critical sociology Critical geography	Purpose of HE Science and society Scholarship Knowledge society Publics Modes 1 and 2 knowledge Cultures of science and accountability

Science communication

In contrast with the higher education domain of policy and practice, the science and technology domain (and its academic manifestations as science communication – SC – and science and technology studies – STS) has experienced a relatively coherent evolution in conceptualizations of engagement from public understanding of science (PUS) to public engagement with science and technology (PEST). Despite the historical – and functional – necessity of strict segregation of laboratory-based science from society (to protect both the public from risk of contamination and materials from risk of contamination by publics (see Watermeyer and Lewis, 2015)) the communication of science beyond the university has a long history in the UK. In 1979, the journal *Science Communication* was established. In 1985, the importance of public understanding of science was flagged by the Royal Society through the Bodmer Report, which responded to a perceived crisis of public support for scientific and technological developments (see Burchell, 2015). This led to an agenda to educate the public and raise the national level of scientific

literacy – an agenda substantiated by the establishment of the Committee on the Public Understanding of Science (COPUS) and the journal *Public Understanding of Science* in 1992 (Stilgoe *et al.*, 2014). As many have noted, this agenda represents a *deficit* model of engagement, which perceives the public as uninformed and in need of education (for example, Brossard and Lewenstein, 2010). By 2000, however, the discourse had shifted to an emphasis on *dialogue*, as set out in the House of Lords Science and Technology Select Committee's *Science and Society* report (House of Lords, 2000), which called for two-way engagement with the public as part of the 'upstream' knowledge-production process – not just in relation to the translation of research outputs (Wilsdon and Willis, 2004). While deficit approaches include both public consultation and more educative information or awareness-raising initiatives, dialogic approaches are more collaborative and involve varying degrees of participation in the production, representation and communication of scientific knowledge. Both approaches, however, have implications for 'civic scientific literacy' (Miller, 1998) as a sort of capital to be transmitted (as with the deficit model) or as a prerequisite for participation (as with the dialogic model), with some engagement activities focused on outreach in schools (for example, Holliman and Davies, 2015). The dialogic model also interacts with some conceptualizations of citizen science, which range from public participation in data-gathering or crowdsourcing, interpretation of research and contributing to the design of research itself (for example, Bickerstaff *et al.*, 2010; Haklay, 2013). Lewenstein (2005) also highlights additional types of engagement, which transcend the knowledge–policy divide. These include public engagement in deliberative processes around scientific policymaking and the engagement of research scientists in the democratic policy process. In this context, the Sciencewise-Expert Resource Centre (S-ERC) was established in 2007 as a resource to support the breadth of engagement activities in the science and society movement – organized via a 'public engagement triangle' into activities that 'transmit', 'receive' and 'collaborate' (Sciencewise, 2010).

Despite the range of engagement activities recorded under the PEST banner, critics have argued that this dialogical approach is often limited to specific scientific fields and issues, such as climate science and biomedical studies (Stilgoe *et al.*, 2014). Others have problematized the singular conceptualization of 'the public' and 'experts', or 'society' and 'science', as discrete and dichotomized entities (for example, Maranta *et al.*, 2003; Mahoney, 2012). In response, a smaller subset of the STS literature identifies an alternative approach to engagement based on a more contextual, relational and heterogeneous distribution of participation and expertise (for example, Collins and Evans, 2002; Jasanoff, 2004; Irwin, 2006; Chilvers and Kearnes, 2016) across 'deliberative systems' (Mansbridge *et al.*, 2012) or 'ecologies' (Chilvers and Kearnes, 2016; Irwin and Horst, 2016). In this co-productionist or contextual approach, publics are understood as mediated, emergent, material and diverse collectives (rather than imagined aggregates of autonomous individuals who are external to participation), and participation is seen as a non-linear, multiply productive set of collective practices (as opposed to the traditional cause-and-effect model) (Chilvers and Kearnes, 2016). This implies that concepts such as 'participatory democracy', 'science' and even 'participation' itself cannot be taken as pre-given but are rather emergent *affects* of participatory assemblages. According to this conceptualization, then, engagement should not be seen as embodying a two-partner science–society interaction, but instead as involving a diverse range of groups who claim to speak for both science and society. Crucially, the constitution of these groups will change over time.

However, as with the higher education domain, the STS conceptualizations are also influenced by the impact agenda, as well as policy agendas beyond academia.

Owen *et al*. (2012), for example, highlight a recent shift in terminology by the European Commission from 'science in society' to 'responsible research and innovation', exhibiting superficial political (and corporate) appeal, while contributing to more instrumentalist discourses of engagement.

Table 2 summarizes the different understandings of engagement within the science and technology domain in relation to the evolution of policy and practice.

Table 2: Approaches to research engagement within the science and technology domain

Terminology	Key policy discourses	Key policies and practices	Key fields of study	Key framings
Public understanding of science Public engagement with science and technology Public engagement with higher education Citizen science Public participation Crowdsourcing	Public trust in science Scientific literacy Educational outreach Participatory democracy Deliberative policy Science in society Responsible research and innovation	Royal Society's Bodmer Report (1985) Committee on the Public Understanding of Science (COPUS) House of Lords Science and Technology Select Committee's *Science and Society* report (2000) Sciencewise-Expert Resource Centre (2007)	Science communication Science and technology studies Sustainability science Science education	Deficit models of engagement Dialogic/ deliberative models of engagement Contextual/ Emergent/ Co-productionist models of engagement

Public policy (health, social care and education)

While this third domain incorporates elements of the previous two (with overlaps between medicine and science policy, and interactions with the impact agenda of the higher education sector) it is also informed by several distinct traditions.

The first of these relates to patient and public involvement (PPI) in health and social care research. There is an extensive history from the 1970s of health activism driven by excluded groups in the UK running in parallel to global health social movements (see Brown and Zavestoski, 2004), which have influenced the integration of models based on 'shared decision making' into health policy and practice (see Ocloo and Matthews, 2016), although as Ocloo and Matthews (2016) conclude from their review of the sector, this involvement is still limited to consultation rather than collaboration, and involves a somewhat tokenistic subset of primarily less marginalized patients. In terms of patient involvement in *research*, a similar discourse led to the establishment of INVOLVE in 1996 as a national advisory group, in time housed in, and funded by, the National Institute for Health Research to support active public involvement in NHS, public health and social care research. Although an initial conceptual distinction was made between involvement at the levels of 'consultation', 'collaboration' and 'user control', this evolved into a more nuanced focus on overlapping approaches,

each including multiple ways of involving members of the public in the identification, prioritization, design, implementation and dissemination of research (INVOLVE, 2012). From the field of education policy, a similar distinction is made by Rickinson *et al*. (2011), who identify five key approaches to working with 'research users': (1) creating feedback loops at various points in the research process, as well as in response to outputs; (2) university-led participatory research that integrates the perspective of 'users' to varying extents; (3) combining small-scale studies through the process of 'systematic review' or 'metasynthesis', which acknowledges 'grey literature' from the public or third sector as well as academic studies; (4) co-research for conceptual development or the design of studies; and (5) user-led research, which can be independent of universities.

Linked to the evolution of the policy, practice and understandings of patient, public or user involvement, a related trend focuses on practitioner research or practice research – the participation of public sector practitioners in research processes and practices (see Shaw and Lunt, 2017). This set of approaches has a strong Nordic influence from the fields of health, social care and social work, with an international position consolidated to some extent in 2009 through the Salisbury Statement. The statement contested the traditional idea that research informs practice, proposing instead 'that research also needs to be practice-minded in order to better study and develop knowledge which emerges directly from the complex practices themselves' (The Salisbury Statement, 2009: 4). However, within this broad definition, a distinction has been made between approaches based on partnerships between academics and practitioners, and approaches involving independent practitioner-led research (Shaw and Lunt, 2017). The latter set of these approaches links back to a tradition of 'teachers as researchers' (Stenhouse, 1975) within the UK's education sector, and a related tradition of teacher inquiry or practitioner inquiry from the United States (see Dana and Yendol-Hoppey, 2003). These approaches foreground reflexivity as a means of directing research towards oneself in order to understand and improve one's own professional practices, but have evolved to incorporate elements of action research approaches so that both learning and change are social and collaborative as well as personal (Mclaughlin *et al*., 2004). Nevertheless, these sets of approaches are framed at the level of the individual practitioner, and so contrast with two further approaches that conceptualize engagement at the level of the institution (in the case of education policy, the school). The first of these, located within the school improvement literature, focuses on the use of evidence to change school-based policy and practice, while the second conceives schools as knowledge creators in their own right (ibid.). All three of these perspectives have been incorporated into the British Educational Research Association (BERA)'s report *Research and the Teaching Profession*, which highlights the need for teachers to be able to access, interpret, critique and use education research (BERA, 2014). The report accordingly makes a strong case for schools and colleges to become 'research-rich environments', and for teachers to become 'research literate'. Working with 'research-engaged schools', Brown and Zhang (2016) highlight several factors as essential for evidence-based practice. These include: developing research capacity; creating a research culture; using research as part of an effective learning environment; and developing enabling structures, systems and resources. This body of policy-focused research tends to cast school leaders and governance systems as the primary points of engagement. In this way, it is notably different from more historical traditions of teacher inquiry, which foreground knowledge-production through and for reflexive practice.

A final evolving approach also focuses on the role of evidence in linking research to practice and links to an economic rationale for co-production (see Stephens *et*

al., 2008). Emerging from the political climate of the late 1990s, and fuelled by the Blair Government's commitment to evidence-based policy, the establishment of the National Institute for Health and Care Excellence (NICE) in 1999 played a major role in synthesizing evidence for use across the sector. Shortly after, the Alliance for Useful Evidence was established by Nesta to engage both with the supply and demand side of evidence, and in the early 2010s ten additional What Works Centres were launched to continue this work within different sectors of public policy and different regions of the UK. Against this policy context, understandings of the relationship between research, policy and practice have evolved in three broad stages (or, as Best *et al*. (2008) term them, 'generations'): first, through *linear* models (based on dissemination, diffusion, knowledge transfer/translation, knowledge utilization and so on); second, through *relationship* models (based on knowledge exchange); and third, through *systems* models (based on knowledge integration). The recent systematic study by Davies *et al*. (2015) on 'knowledge mobilization' in the health, social care and education sectors identifies an increasing tendency towards the use of systems theory and complexity theory, and records a range of relational roles played by knowledge agencies in such systems. These include: knowledge production; brokering and intermediation; evidence advocacy; research *into* and *in* practice; fostering networks; and advancing knowledge mobilization. Understanding research-into-practice as a complex system, as opposed to a simplistic uni-linear process, also involves recognizing that knowledge mobilization is not just about research communication but also about 'access', 'uptake', 'adaptation' and 'utilization', and that these processes are not neutral but through processing, synthesizing, recycling, reinterpretation or adaptation transform, to varying degrees, the knowledge in question (Greenhalgh, 2010; Davies *et al.*, 2015).

Table 3 summarizes the different understandings of engagement within the public policy domain in relation to the evolution of policy and practice.

Table 3: Approaches to research engagement within the public policy domain

Terminology	Key policy discourses	Key policies and practices	Key fields of study	Key framings
Patient involvement Research users Practitioner research Practice research Teacher inquiry Research-engaged schools Knowledge transfer/transition/ exchange/ mobilization Knowledge-to-action	Teachers-as-researchers Patient and public involvement Shared decision making Evidence-informed policy/ practice Practice research	INVOLVE established by NIHR (1996) NICE established (1999) Salisbury Statement (2009) on practice research Alliance for Useful Evidence established by Nesta (2010) What Works Centres established (2012)	Implementation studies Social policy Health studies Social work Education policy School improvement	Consultation Collaboration User-control Research access, uptake, adaptation and utilization Linear models of knowledge-to-action Relationship models of knowledge-to-action System models of knowledge-to-action

International development

This fourth policy domain interacts with an interdisciplinary field of study with roots both within and outside the university. As a field, development studies has sustained an interest in the intersection between knowledge-production, policy and practice, drawing on research from international policy and the NGO sector, as well as academic traditions of economics and political science (focused on structural analysis of the power relations between these sectors), and sociology, anthropology and geography (focused on ethnographic analyses of social practices of knowledge-production and use). Critics have also scrutinized the power relations inherent in contributions of different actors to knowledge about development (or the 'development discourse'; for example, Sachs, 1992; Escobar, 1995 and, more recently, Moore, 2015). Complementing this analysis, a strong tradition of participatory research originating in the 1970s through the Latin American school of dependency theory and the work of the Brazilian educator Paulo Freire generated bottom-up or indigenous approaches to knowledge-production (for example, Chambers, 1997). While the participation movement began as a radical critique of the mainstream approach to objects of research (shifting power away from the expertise of the development consultant to the 'voice' of the poor), the approach – and particularly its manifestation in participatory rural appraisal (PRA) – was rapidly mainstreamed by international agencies, including the World Bank, and transformed into instrumental practice designed to gain access to communities and legitimize policies such as the structural adjustment programmes of the 1980s and 1990s (a precursor to austerity in the UK) and Poverty Reduction Strategy Papers of the early 2000s (see Munck, 2014). This led to a profound critique of participation as a 'new tyranny' (see Cooke and Kothari, 2001), masking power relationships and even exacerbating local power differentials.

More recently, a related movement around 'cognitive justice' (Visvanathan, 1997, 2009; Sousa Santos, 2007) and the role of 'southern theory' (Connell, 2007) has called for attention to diverse knowledges from the global South in a world where the production and dissemination of science and technology are still concentrated in the North (see also Hall and Tandon, 2017). This movement interacts with another participatory approach, termed community-based (participatory) research, which was particularly prominent in North America (see Israel *et al.*, 1998; Wallerstein and Duran, 2003), although as Tandon and Hall (2014) point out, the engagement of research with communities has a longer, and more complex, history spanning Africa and Asia as well as Latin America. These critics argue that groups from the global South may view the notion of community (and its relationship to knowledge, nature and memory) quite differently to the dominant Eurocentric understandings that characterize Northern traditions around community outreach, civil engagement and service learning (see the following section).

However, this critical attention to inequitable global distributions of knowledge and power is by no means the only (or indeed the dominant) approach to research engagement in the international development policy domain. As with the public policy domain, studies on the role of evidence production and use in policy and practice have emerged from NGOs under pressure to satisfy donors and supporters by providing rigorous measures of success for their programmes (Eyben *et al.*, 2015) in the face of the UK's Department for International Development's (DFID) 'payment by results' framework. In a sector deeply concerned with advocacy (in addition to improving understanding and organizational learning), it is vital for practitioners to be able to evaluate evidence (Hayman and Bartlett, 2013). Drawing on a similar body of literature to the public policy work around evidence-informed policy and practice, guidelines for assessing the quality of evidence have built on 'principles of credible research enquiry'

(DFID, 2013: 10) and generated 'evidence principles' grounded in NGO values and types of intervention (BOND, 2013). In response, researchers working at the research–policy–practice interface have explored the implications for research capacity building across the sector (see Newman *et al.*, 2012) and the role of NGO practitioners as researchers in their own right (see Hayman *et al.*, 2016). This work has also fuelled a renewed interest in research partnerships between NGOs and universities (for example, Aniekwe *et al.*, 2012; Hanley and Vogel, 2012), as well as critical analyses of how the different notions of evidence advanced by different stakeholders frame partnerships (for example, Cornish and Gillespie, 2009; Beardon and Newman, 2011; Shutt, 2009; Eyben *et al.*, 2015). A recent focus on the role of 'evidence artefacts' in development policy and practice (see Eyben *et al.*, 2015) has also introduced a new focus on materiality into understandings of knowledge-production – acknowledging the power of texts, templates and technologies to influence practice.

While studies on the politics of evidence for development have tended to focus on the evidence work of UK-based universities and international NGOs, a recent policy development in 2015 saw the launch of the Global Challenges Research Fund (GCRF) with a substantial investment of the British government's Overseas Development Assistance (ODA) budget into research funding. This has had a profound effect on the sector, with new incentives for UK-based higher education institutions to forge partnerships with researchers and civil society organizations from the global South, although critics have raised concerns about the allocation of ODA funds primarily to British universities as a type of 'tied-aid' (see ICAI, 2017).

Table 4 summarizes the different understandings of engagement within the international development domain in relation to the evolution of policy and practice.

Table 4: Approaches to research engagement within the international development domain

Terminology	Key policy discourses	Key policies and practices	Key fields of study	Key framings
Participatory research Community-based (participatory) research NGO research Research partnerships Research capacity building	Poverty reduction Participation Evidence-informed policy Sustainable development Global challenges Research partnerships Capacity building	Dependency theory (1970s) Participatory rural appraisal (1980s) Poverty Reduction Strategy Papers launched (2002) DFID's principles of credible research enquiry (2013) BOND's evidence principles (2013) DFID's payment by results strategy (2014) Global Challenges Research Fund (GCRF) launched (2015)	Development studies Political science Sociology Anthropology Intellectual history Adult education	Participation Action research Critical pedagogies Cognitive justice Southern theory Evidence artefacts

Community development

In this final domain, discourses including those identified in the previous domains (for example, around public engagement with research, community-based research and university–community partnerships) have evolved and intersected with other traditions of research and practice, as well as UK-specific policy shifts. O'Brien and Matthews (2016) provide a helpful account of these shifts in relation to (post-) urban regeneration, from the programme of regeneration by the New Labour Government in the late 1990s (specifically, the New Deal for Communities) to the Conservative Government's austerity agenda twenty years later (with the 'Big Society' programme of the Conservative–Liberal Democrat Coalition Government from 2010 and the Localism Act in 2011 – see also Allmendinger and Haughton, 2012 and Mayo *et al.*, 2013). This potted history helps to locate the renewed emphasis on communities as stakeholders in research. Against this backdrop, a series of interrelated approaches to research engagement can be traced.

The first of these relates to the lengthy history of research being conducted by individuals and groups outside of the university. In her extensive overview of non-academic research practices, Finnegan (2005) lists, for example, seventeenth-century village astronomers, missionary meteorologists, Victorian amateur botanists, industrial investigators, local archaeologists, freelance family historians and internet bloggers. Some of these 'independent researchers' have strong activist identities, linking knowledge and advocacy through social movements around civil or disability rights, or in relation to environmental or social justice campaigns (for example, Morris, 1991). Others, such as 'hacker' and 'makers' communities, combine cooperative, creative and sometimes explicitly ideological practice with technical innovation (for example, Gaved and Mulholland, 2010) to develop new knowledge, as well as new objects and networks. Still others contribute to the development of formal research practice; for example, a particularly strong tradition in the UK has been that of oral history, people's history or public history, which grew prevalent in the 1960s and 1970s and intersected with the scholarly fields of folklore studies and labour history, later becoming contemporary community history studies (see Kean and Martin, 2013; Lloyd and Moore, 2015). The central aim of this approach was to capture eyewitness accounts of historical events or to understand the workings of communities through the experience of their members in a particular place and historical period. This gave non-academic researchers a way to actively participate in making history, either outside of universities or through 'shared authority' with academics (Frisch, 1990). In the UK, this authority was partly recognized by the legitimation of community-based oral historians through the formation of the Regional Network of Oral Historians in 1993. Non-academic research has also evolved in other fields, for example, in the visual and performance arts through use of the arts in community health research (for example, Ings *et al.*, 2012; Macpherson *et al.*, 2014) and practice-as-research approaches from the performance arts, which highlight embodied and reflexive ways of knowing alongside more conventional types of academic knowledge (see Nelson, 2013; Barrett and Bolt, 2007; Freeman, 2009).

While this first set of research practices emerges from outside of the university, a second set of approaches focuses explicitly on collaboration between communities and higher education institutions. These approaches interact with traditions around service learning, civic engagement and community outreach originating in the United States and Canada (see Bivens *et al.*, 2015), but in the UK context tend to be grounded in traditions of participatory or action research (for example, Reason and Bradbury, 2001; Brydon-Miller *et al.*, 2003), which foreground the interface between theory and

practice as 'praxis', or what Facer and Enright (2016), drawing on Whitehead, refer to as 'living knowledge'. While much of this work focuses on reconciling diverse knowledges, a body of more recent literature from the field of social movement studies (for example, Chesters, 2012; Derickson and Routledge, 2015; Choudry, 2015) highlights the power relations between academic knowledge and the theoretical knowledge produced by activists in communities outside of the university. Cox and Nilsen (2007), for instance, show how the academic social movement literature can perform three damaging functions: (1) exploiting activist theorizing (while claiming credit for itself); (2) suppressing activist theorizing (when it challenges the definition of 'the field' that the literature ultimately seeks to assert); and (3) stigmatizing activist theorizing as 'ideology' (rather than analysis grounded in practical experience). Others have raised the uncomfortable question of whether a contradiction exists between the aspirations of activist scholars for truly engaged research and their simultaneous participation in competitive and hierarchical academic practices (for example, Hale, 2008; James and Gordon, 2008; Pain, 2014).

A final development in participatory research (which links back to some of the work emerging from STS in the science and technology domain and the focus on material artefacts from the international development domain) relates to the participation of 'more-than-human' elements, including animals in research (see Reason, 2005; Bastian, 2013), with implications for understandings of participants, research methodology and ethics.

Returning to the impact agenda, a third set of approaches in the community development domain stem from the 'crisis in the humanities' (O'Brien and Matthews, 2016) as these disciplines struggled to account for their 'public contribution' or 'cultural value' (see Bate, 2011; Collini, 2012; Warner, 2015). This crisis sparked four key responses. The first took a similar form to the early work in science communication, with an increase in humanities scholars' interaction with the media, involvement in public lectures and debates, writing for lay audiences, participating in literary and arts festivals, and working with galleries and schools (see Levitt *et al.*, 2010; Burchell, 2015). The second involved a drive to cultural innovation and entrepreneurialism (for economic impact) (see Bate, 2011; Hughes *et al.*, 2011). The third saw an increase in the use of the humanities, but particularly the arts, in multi/cross/interdisciplinary efforts to improve the communication of science-based disciplines (see Barry and Born, 2013). The fourth, and probably most influential, of these responses was the large-scale programme funded by the Arts and Humanities Research Council (AHRC) called Connected Communities, which launched in 2010 and integrated a rich tapestry of arts and humanities-based approaches, including: public history; community-engaged arts; feminist, critical race theory and postcolonial traditions; civil and disability rights approaches; environmental practice engaging indigenous and 'non-human' knowledges; cultural, material and visual anthropology; cultural studies; patient engagement and responsible innovation; action research and participatory action research; communities of practice approaches; co-design; and open innovation, commons and crowd perspectives (Facer and Enright, 2016). The framing of engagement that has evolved through this programme has emerged as a collaborative process between community and university partners, which is 'socially-situated', 'discursive', 'embodied', 'political and economic' and 'complex', and which generates a 'living knowledge' (ibid.: 23). A major influence of this programme has also been the recognition of 'community partners' as co-investigators in government-funded research.

Table 5 summarizes the different understandings of engagement within the community development domain in relation to the evolution of policy and practice.

Table 5: Approaches to research engagement within the community development domain

Terminology	Key policy discourses	Key policies and practices	Key fields of study	Key framings
Independent researchers Public engagement with research Community-based (participatory) research University–community partnerships Co-design Co-production Collaborative research Activist-scholars	Civil and disability rights Service learning Civic engagement Community outreach Community-based research Urban (post) regeneration Cultural policy	Regional Network of Oral Historians established (1993) New Deal for Communities (1998) Austerity Programme (since 2008) 'Big Society' programme (2010) Connected Communities programme launched by AHRC (2010) Localism Act (2011)	Cultural studies Area studies Anthropology Oral history Cultural heritage Urban studies Architecture Design Museum studies Visual arts Performance arts Social movement studies	Action research/ participatory research Critical pedagogies/ Praxis Activist theory Communities of practice Living knowledge More-than-human participants Cultural legacy

Towards a framework for defining the field of research engagement studies

The understandings of research engagement that emerge from the five domains above have evolved in a similar historical and geopolitical context, but through different approaches to thought and practice. Within each domain there are contrasting (and at times conflicting) interpretations of elements of research engagement, including: the *'whos' of engagement* (for example, 'users', 'stakeholders' and 'beneficiaries' or dialogue/collaboration between publics and scientists; universities and communities; practitioners and academics – although critics such as Maranta *et al*. (2003) and Mahony and Stephansen (2016) have addressed the limits of these imagined or aggregated identities, while others such as Reason (2005) and Bastian (2013) have called for the recognition of more-than-human animal or chemical or technological participants); the *'whys' of engagement* (for example, individual, organizational and sector-wide motivations and incentives for engagement linked to practical, personal, conceptual and symbolic purposes – see Davies *et al*. 2015 – or substantive, normative and instrumental benefits – see Duncan and Oliver (2017); although, as Rotman *et al*. (2012) point out, these are likely to change over time); the *'wheres and whens' of engagement* (for example, within, outside of, or at the borders of the university; in local or socially situated cultural contexts – for example, the notion of African

community-based research proposed by Van Wyk and Higgs (2012), at different scales and against the unequal global distribution of the knowledge economy); and the *'hows' of engagement* (for example, institutional policy and strategy; the logistical organization of engagement initiatives; the different engagement activities; and the dynamics of collaboration). In order to identify trends across these different understandings of research engagement (as well as gaps in the literature and ways forward for a field of research engagement studies) a heuristic framework is proposed based on three dimensions: (1) configuration of engagement; (2) locus of engagement within knowledge-to-action processes and systems; and (3) analytical lens. These dimensions are discussed in turn.

Configuration of engagement

The first dimension summarizes different understandings of how engagement is configured: (1) as activity; (2) as relationship; (3) as process; (4) as system; and (5) as affect.

Research engagement as activity: At its most basic, research engagement is understood as an activity, initiative or event. This understanding stems from the early science communication literature, whereby publics were invited to interact with research findings (for example, European 'science shops') and the arts and humanities literature involving festivals and exhibitions. Embedded in this understanding are a range of deficit approaches to engagement including 'transmission', 'dissemination', 'outreach', 'awareness-building' or 'communication'. However, activities can also include an element of consultation.

Research engagement as relationship: Probably the most common manifestation of engagement in the literature is the idea of a relationship between two parties (for example, universities and communities, scientists and publics, or academics and practitioners). This implies a more dialogic approach to engagement based on 'participation' or 'collaboration'. However, such relationships are never neutral and seldom equal. Questions around whose expertise counts, who is cast as 'author' or 'audience' of the research, and who has ownership of the research design, process and products can help to think through power relations. Facer and Enright (2016: 68–72) provide a helpful typology for the relationships between academic and community partners in collaborative research: (1) 'divide and conquer' approaches, in which there is a clear division of labour according to different sets of skills and expertise; (2) 'relational expertise', in which participants keep their own roles/identities but also try to understand (and even 'temporarily inhabit') others' perspectives; (3) 'remaking identities', in which participants actively take on others' identities and jointly construct new ways of knowing; and (4) 'colonisation and confusion', when the desire to disrupt hierarchies without a genuine sense of contexts and practices results in chaos and potential abandonment.

Research engagement as process: A third configuration of engagement manifests as the linear or cyclical processes of research or knowledge-to-action (for example, Graham *et al.*, 2006). These understandings define a range of discrete stages for engagement to pass through, and contain underlying assumptions about the type of change that will be generated through the process. Barry and Born (2013) argue that within the impact agenda, this tends to be expressed either through the logic of accountability or the logic of innovation. However, the authors also identify a

third logic (of ontology) that is capable of transforming the nature of knowledge-production itself.

Process models are also prevalent in the literature grounded in action research, which is based on a cyclical relationship between research, reflection and action. According to Murphy and Fafard (2012) this approach represents an 'emancipatory' type of knowledge as opposed to more 'instrumental' and 'hermeneutic' types.

And, finally, understandings of engagement as a process also form the basis of much of the practitioner-generated literature (particularly in the public policy and international development literature) and are represented by 'theories of change' frameworks that increasingly form part of organizational strategy (see Jackson, 2013).

Research engagement as system: In this fourth configuration of engagement, engagement unfolds through a more complex set of relationships between people, institutions, things, ideas and specific places. In the literature that is grounded in political science or geography, this tends to focus on the workings of the (global) political economy and its distributions of power and knowledge (for example, Connell, 2007; Sousa Santos, 2007; Choudry, 2015; Hall and Tandon, 2017).

Other approaches based on network analysis, systems thinking and complexity theory (for example, Burns, 2013) tend to work more on defining the different elements of systems within specific contexts. This approach also forms the basis of much of the literature on 'knowledge mobilization' (see Davies *et al.*, 2015).

Research engagement as affect: A final configuration (particularly from the STS literature) conceives engagement as the emergent outcome of complex relational assemblages of social and material elements (for example, Irwin and Michael, 2003; Strathern, 2004; Jasanoff, 2004; Chilvers and Kearnes, 2016). This understanding implies that engagement work cannot always be planned from the outset, and that ideas about impact are likely to change over the course of the engagement. It also provides a helpful commentary on the emerging field of engagement research studies, which is in a constant state of becoming and can therefore never be fully defined as it continues to evolve in response to changes in practice and thought.

As such, affective approaches to engagement call for some imaginative rethinking of the philosophical 'conditions of possibility' of subjective identities and social practices (for example, Enright and Facer, 2016), institutional structures and processes (for example, Burawoy, 2017; Barnett, 2012, 2016) and material artefacts (for example, Barry and Born, 2013; Chilvers and Kearnes, 2016).

Locus of engagement

This second dimension addresses the location of engagement within broader processes or systems of research-to-action. These include: (1) engagement in knowledge production; (2) engagement in research communication; (3) engagement in research utilization; (4) engagement in research governance; and (5) engagement in impact and learning.

Engagement in knowledge production (design and implementation): Most of the engagement literature locates engagement (at least to some extent) within knowledge production. However, the processes and practices of knowledge production are particularly foregrounded in the literature on collaboration (from the community development domain) and partnerships (from the international development domain). A smaller body of literature, which looks at knowledge-production by practitioners in sites outside of the university and runs across all five domains, also shares this focus.

These studies are all interested in the question of how research is designed and implemented, who participates and to what extent, how these processes are mediated by different types of methods, skills and artefacts, and what types of infrastructure or enabling environment is necessary to support engaged research production.

Engagement in research communication (representation and dissemination): The literature on public engagement and science communication (from the higher education and science and technology domains) tends to focus on the interaction of the public with research, while the literature on public policy has traditionally focused on knowledge transfer, translation and diffusion, although more recent studies have adopted a more holistic focus on the knowledge-to-action process or cycle. Within the community development domain, studies grounded in participatory approaches have focused on the politics of representation of research, while studies into open research have focused on accessibility.

Engagement in research use (uptake, adaptation and utilization): The literature on evidence-based policy/practice (from the public policy and international development domains) concentrates primarily on knowledge utilization and the relationship between uptake and impact. More recent manifestations based on 'knowledge mobilization' again take a more systematic approach and acknowledge the interrelated processes of production/communication. This literature also includes a focus on the engagement capacity or research literacy of research users.

Engagement in research governance (agenda-setting and evaluation): A much more limited set of studies (primarily from the public policy domain) has focused on the participation of different groups in research governance processes, including funding-review colleges, criteria-setting panels, ethics committees and evaluative teams. Once again, this tends to form a component of the more systemic literature on knowledge mobilization. However, a far greater number of studies have observed that engagement practice is often curtailed by research funding policy and practice.

Engagement in impact and learning: Finally, some of the engagement literature either conflates engagement with impact, or explores the potential for engagement to offer an alternative conceptualization of impact (for example, Pain *et al.*, 2015; Facer and Pahl, 2017). This literature responds to questions around how to evaluate and attribute impact. Linked to this is a broader interest in the relationship between engagement and learning. This is manifested across the literature in two key ways: first, through consideration of the particular skills or capacity required for effective engagement (with implications for researcher development work), and, second, through identification of learning as a key *outcome* of engagement. Particularly emerging from the participatory studies from community development (for example, Hart *et al.*, 2013; Facer and Enright, 2016), these studies understand learning to be an essential part of the knowledge-to-action research cycle. Within this process, a key element is critical reflection, which might include discussion of any tensions, contradictions and power relations between the research participants.

Analytical lenses

This final dimension describes the different analytical lenses through which engagement is understood. These include understandings of engagement through: (1) identities; (2) practices; (3) institutions; (4) artefacts; and (5) accounts.

Understanding engagement through identities: This first analytical lens draws on psychosocial traditions to produce 'embodied' understandings of engagement practices based on subjectivities, biographies and emotions. Much of the literature explores the motivations for engaging in research. Other studies focus on the diverse roles that different participants play. Several studies highlight the issue of representation, showing how the idea of distinct participant identities is largely imagined, although others argue that even if participants cannot be reduced to simplistic labels, research identities are still important to many, and especially those identities of a hybrid nature. Terms such as 'pracademic', 'researcher-activist', and 'scholar-activist' have gained prevalence in recent years, as researchers struggle to make sense of ambiguous and ambivalent subjectivities. Linked to this, a final body of studies focuses on *affect* in research engagement, including the 'emotional politics of collaborative research', with implications for how identities are formed and contested through research engagement (for example, Griffin *et al*., 2013).

A focus on *identities* as an analytical lens lends itself to research designs based on a narrative methodology. This approach invites individuals to represent their own experiences of engagement through interviews or journalling.

Understanding engagement through practices: This second analytical lens builds on the identities lens by exploring the social interactions around the processes and products of research engagement. Rooted in local or cultural contexts ('socially *situated*'), this lens tends to foreground the day-to-day experiences and interaction of specific groups or communities. Since studies using a 'social practice' lens have a particular interest in how people communicate, several also focus on how communicative interaction is mediated by artefacts; how people learn and develop 'expertise'; and how marginalized voices or knowledges might be 'empowered'. Studies using this lens are also interested in the dynamics of participation – in which power is a key component. For example, in the field of international development, studies have interrogated the politics of participation in partnerships.

A focus on *practices* as an analytical lens lends itself to research designs based on ethnographic approaches. This involves intensive fieldwork or participant-observation in one or more carefully defined sites. It also implies the need for careful reflexivity on the part of the researcher to disentangle the emic accounts of engagement from the etic description of those accounts (see Pike, 1967).

Understanding engagement though institutions: This third analytical lens focuses on the agendas, structures and processes of research-producing and/or using organizations and their effect on establishing enabling/constraining environments for research engagement. In the higher education domain, for example, many authors adopted an institutional lens to query the purpose of universities in the context of changing accountabilities and encroaching commodification and regulation. Other studies in the review explored how the purpose of research engagement was driven by the context of the political economy. While some studies focused pragmatically on how institutional infrastructure can be developed to support engagement, others recognized the *symbolic* role that research engagement can play. Related studies highlight the role of power to show how different modes of research are ordered by knowledge hierarchies, determining what counts as evidence.

A key component of this approach is the Foucauldian notion of discourse, whereby 'disciplinary boundaries, researcher identities … and definitions of research quality and validity are not neutral but contested, subject to change over time and can be understood as sites of struggle for symbolic and political power' (Facer and Enright, 2016: 23). In response, studies using this lens tend to draw on methodological traditions based on policy discourse analysis.

Understanding engagement through artefacts: This fourth analytical lens focuses on the material conditions of engagement as realized through specific technologies, tools and texts. Many studies from the review considered the nature of 'research products' produced through engaged research processes. While traditional academic research tends to prioritize outputs such as peer-reviewed written publications, a recurring theme in the literature is the need for more accessible products and the importance of 'open access' depositories and data archives. In collaborative research, representations of non-academic knowledge may well take alternative forms that privilege audio, visual or embodied modes of communication, or draw on the affordances of new media and technologies to produce multimodal ensembles. Authors writing about community-based research have identified outputs as diverse as websites and blogs, documentary films, exhibitions, artwork and performances.

Artefacts are also a key aspect of much of the engagement literature grounded in science and technology studies, which focuses on engagement as a social-material assemblage of people, institutions, ideas and things, with some arguing that the very publics who are presumed to form the basis for public engagement are themselves materially constituted.

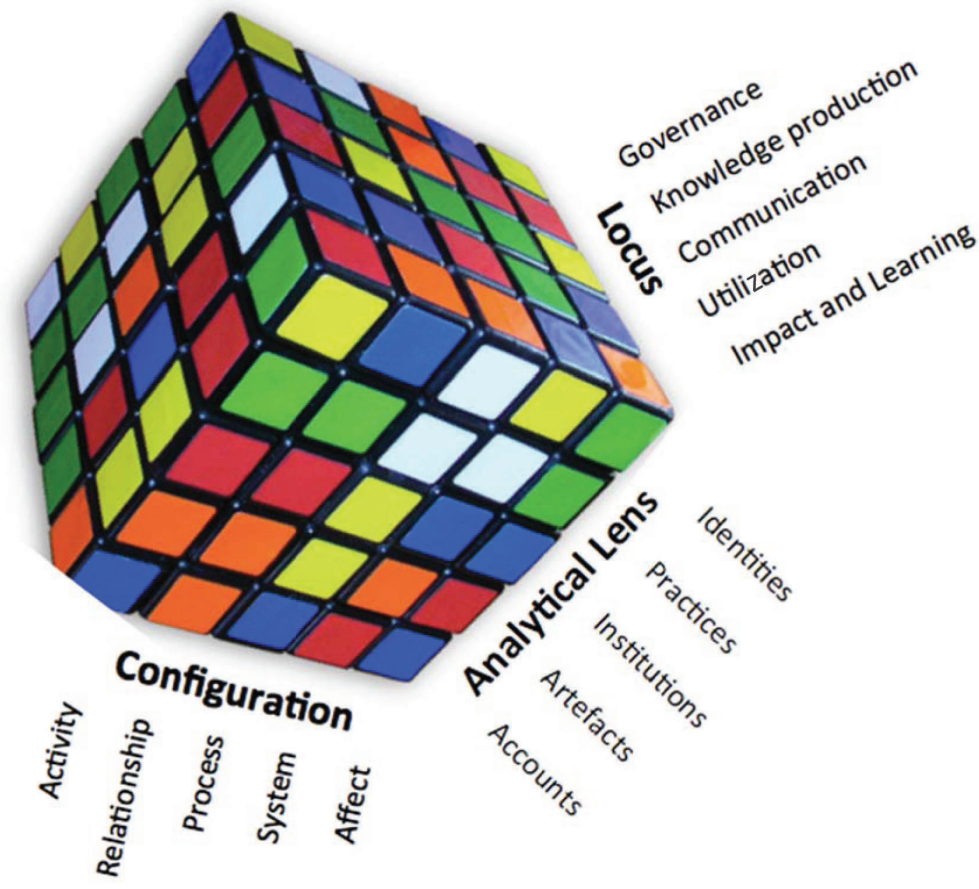
Specific methodologies associated with this lens include analysis based on human–computer interaction, web analytics and social-material semiotics.

Understanding engagement through accounts: This final analytical lens adopts a 'meta' philosophical stance to explore how conceptualizations of engagement are constructed. This approach tends to result in 'epochal' accounts of engagement or 'grand narratives', such as Gibbons *et al.*'s (1994) distinction between 'Mode-1' and 'Mode-2' knowledge, or the distinction between 'public understanding of science' and 'public engagement' as two models of science communication. However, this lens can also be used in conjunction with the identities, practices or institutional lenses to explore how individuals or groups make sense of their experiences of engagement.

A focus on *accounts* as an analytical lens lends itself to methods based on rhetorical analysis – such as the following section of this article, which compares the evolution of conceptualizations of engagement in different research domains.

Figure 3 sets out the conceptual scope of the proposed field of research engagement studies as a Rubik's Cube based on the analysis above. While this might provide a tool to help locate the different understandings of engagement, most understandings incorporate multiple elements of the different dimensions, with understandings often shifting over the course of an activity or study. The metaphor of a puzzle is also potentially helpful in understanding an emerging field attempting to make sense of itself (with meaning – and pleasure – derived precisely from that sense-making).

Figure 3: Understanding research engagement: A Rubik's Cube of the emerging field of research engagement studies



Conclusion

This article has attempted to chart out a new field of research engagement studies by comparing a range of understandings that have evolved within and across five domains of policy and practice. By drawing on this review it has developed a framework to distinguish between the different core elements of engagement, as well as key cross-cutting themes and the analytical lenses that define the different understandings. Across this framework, the following trends can be charted:

(1) A move towards conceptualizations that are grounded in practice, as well as research approaches that are at least informed by non-academics, if not produced entirely in settings outside of academia. This increasing recognition of independent research practice beyond the university has also spawned an interest in the political economy of research, and the relative worth of academic versus non-academic approaches to research in the world today.

(2) A move towards more holistic, integrated conceptual approaches, which emphasize complex and dynamic configurations of people, things, organizations and ideas. These approaches also tend to take reflexive responsibility for the ontological affect of particular conceptualizations (or *accounts*) of engagement on the practice of engagement itself. This suggests the need for an ethics of engagement research as well as practice.

(3) A tendency towards approaches based on inter/trans/multi/cross-disciplinarity, which, as Burawoy (2012) suggests, runs the risk of undermining the rigour of the field, as well as potential for critique and, as Barry and Born (2013) point out, has the potential to undermine certain disciplines, subsuming them under others.
(4) Increasing recognition of the ideologically motivated tensions and contradictions between different elements of the impact agenda in the UK, and higher education policy more broadly. This has simultaneously undermined the coherence and effectiveness of certain approaches to engagement, while creating opportunistic spaces for more radical practice.
(5) Increasing attention to the issue of research capacity and the identification of new 'engagement literacies', both within and beyond the university. This issue is addressed in different (and at times conflicting) ways across the literature, and ranges from the incorporation of reflexive learning into engagement initiatives, to development of key skills for engagement, to the role of institutions in developing research capacity.

This review has also identified a number of gaps in the conceptual literature:

(1) Despite the emphasis on collaborative or dialogic approaches to engagement, the literature is dominated by academic conceptualizations, while practitioner-generated conceptualizations are far less common. There is also likely to be a mismatch between research outputs, which are compatible with what we refer to as 'the literature', and alternative outputs that might include conceptual elements but are communicated through modes and media other than writing, for example, as artworks, films, workshops, exhibitions or performances (see, for example, resources described by Back and Puwar, 2012; Facer and Enright, 2016; Facer and Pahl, 2017). While collaborative initiatives have generated numerous academic accounts of these community-based representations, there is necessarily some translation involved, as they are re-contextualized into more conventional academic formats.
(2) Linked to the above, is analysis of the role of different types of 'engagement artefacts' in mediating (enabling or constraining) engagement practice. While the literature on open or digital scholarship is inherently optimistic about the democratic affordances of new technologies, there is need for a thorough appraisal of these in relation to more traditional research texts, technologies, tools and techniques. This also carries implications for the types of 'engagement literacies', which are, and should be, valued, and the types of enabling environments and infrastructures necessary to develop and sustain them.
(3) Despite the conceptual shift towards 'systems' or 'ecologies' of engagement, there have been few attempts to trace engagement practices from research agenda setting and governance, to knowledge production, to communication, to use, and onwards to 'impact'. Such a study would add an invaluable empirical component to the conceptual literature.
(4) Any conceptual analysis of research engagement must engage with its continuously evolving sites of production. Policy processes such as those surrounding Brexit and recent discourses around, for example, 'post-truth politics' will have a significant influence on how the relationship between knowledge and practice is understood and negotiated in the UK context. A field of study focused on understanding this relationship must be responsive to such geopolitical and sociocultural shifts.

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APPENDIX I: Review studies by sector

Name of study	Reference	Sector
Characterizing Modes of University Engagement with Wider Society: A literature review and survey of best practice	Conway *et al.* (2009)	Higher education
Hidden Connections: Knowledge exchange between the arts and humanities and the private, public and third sectors	Hughes *et al.* (2011)	Business studies
Mobilising Knowledge to Improve Health Care: Learning from other countries and other sectors	Davies *et al.* (2015)	Public policy
Evidence Exchange: Learning from social policy across the UK	McCormick (2013)	
Practitioner Research and Social Care: A Review and recommendations	Shaw *et al.* (2014)	
After Urban Regeneration: Communities, policy and place	O'Brien and Matthews (2016)	Third sector
Community Research for Community Development	Mayo *et al.* (2013)	
'Community-Based Research: Genealogy and prospects'	Munck (2014)	
InterAction: How can academics and the third sector work together to influence policy and practice?	Shucksmith (2016)	
Academic–NGO Collaboration in International Development Research: A reflection on the issues	Aniekwe *et al.* (2012)	International development
Interrogating an Engaged Excellence Approach to Research	Oswald (2016)	
Towards a Knowledge Base for University–Public Engagement: Sharing knowledge, building insight, taking action	Facer *et al.* (2012)	Arts and humanities
Creating Living Knowledge: The Connected Communities Programme, community–university relationships and the participatory turn in the production of knowledge	Facer and Enright (2016)	
Practice as Research in the Arts: Principles, protocols, pedagogies, resistances	Nelson (2013)	
'A critical appraisal of models of public understanding of science: Using practice to inform theory'	Brossard and Lewenstein (2010)	Science and technology
Factors Affecting Public Engagement by Researchers: Literature review	Burchell (2015)	
'Norms and values in UK science engagement practice'	Jensen and Holliman (2016)	
'Public engagement in higher education: The state of the art'	Watermeyer and Lewis (2015)	
'Knowledge exchange: A review and research agenda for environmental management'	Fazey *et al.* (2012)	Environmental science

APPENDIX II: Research engagement literature search strategy

The literature searches focused on literature including conceptualizations of research engagement (for example, theories, frameworks and models) published over a 15-year period, between 2002 and 2017, written in English and focused on the UK or published by UK-based authors.

A first wave of literature on 'research engagement' was identified through citations from the 19 review studies (see Appendix I) and supplemented by the identification of further references from the 11 key informant advisers.

A second wave of literature was identified through a series of searches in key databases and indices, as well as more specific searches in key journals, institutional resource pages and media sites.

Indices and databases included:

- Web of Science Citation Index
- Social Sciences Citation Index
- Arts and Humanities Citation Index.

Targeted journals included:

- *Research for All*
- *Gateways: International Journal of Community Research and Engagement*
- *Public Understanding of Science*
- *Science Communication*
- *Evidence and Policy: A Journal of Research, Debate and Practice*
- *Higher Education Quarterly*
- *Development in Practice.*

Institutional archives included:

- NCCPE: www.publicengagement.ac.uk/resources
- INVOLVE: www.involve.org.uk
- Sciencewise: www.involve.org.uk/programmes/project-sciencewise/
- NESTA: www.nesta.org.uk/resources
- INTRAC: www.intrac.org/resources/page/1?terms=
- BOND: www.bond.org.uk/resources
- NCVO: www.ncvo.org.uk/policy-and-research

Media outlets included:

- *Times Higher Education*: www.timeshighereducation.com
- *Guardian Higher Education*: www.theguardian.com/education/higher-education
- LSE Impact of Social Sciences Blog: http://blogs.lse.ac.uk/impactofsocialsciences
- The Conversation (UK): http://theconversation.com/uk

Searches through these resources were guided by four broad framings of engagement, identified iteratively and defined as:

- a type of research/scholarly/disciplinary activity (for example, engaged research, public scholarship, the digital university, academic activism)
- a knowledge-into-action process or cycle or system (for example, science communication, knowledge translation, knowledge exchange or knowledge mobilization)

- a collaborative relationship between academic and non-academic individuals, groups, institutions or sectors (for example, co-production or university–community partnerships)
- a research activity conducted by non-academic individuals, groups, organizations and sectors outside and independently of academia (for example, practice research, teacher inquiry or citizen science).

The strategies for these four searches were:

- Terms describing engagement as a type of research, scholarly or disciplinary activity (TI=(public OR open OR digital OR engage* OR activis* OR civic OR people*) AND TI=(academ* OR universit* OR schol* OR scien* OR sociolog* OR humanities OR geography* OR art* OR research* OR theor*) AND TI=(framework OR model OR typology OR taxonomy)) *AND* **LANGUAGE:** (English) Indexes=SCI-EXPANDED, SSCI, A&HCI Timespan=2002–17
- Terms describing engagement as a research-into-action process/cycle/system (TI=(transfer OR utilisation OR utilization OR diffusion OR dissemination OR uptake OR mobilization OR exchange OR translation OR communication) AND TI=(framework OR model OR typology OR taxonomy) AND TI=(knowledge OR evidence* OR research OR science)) *AND* **LANGUAGE:** (English) Indexes=SCI-EXPANDED, SSCI, A&HCI Timespan=2002–17
- Terms describing collaborative academic-non-academic research activity as a relationship (TI=(partner* OR collaboration OR co-inquiry OR co-production OR co-curation OR engage*) AND TI=(framework OR model OR typology OR taxonomy) AND TI=(academ* OR universit* OR schol* OR research*) Indexes=SCI-EXPANDED, SSCI, A&HCI Timespan=2002–17
- Terms describing non-academic research activity independent of academia (TI=(communit* OR pract* OR school OR teacher OR hospital OR NGO OR CSO OR business* OR industry OR private OR commerce* OR public OR user OR stakeholder OR lay OR beneficiary OR citizen)) AND TI=(academ* OR universit* OR schol* OR research* OR inquiry OR enquiry OR science)) *AND* **LANGUAGE:** (English) Indexes=SCI-EXPANDED, SSCI, A&HCI Timespan=2002–17

Given the breadth (and conceptual depth) of literature identified through these searches, a systematic classification and interrogation of the citations was not attempted. Rather, the searches were used to identify key terminology, as well as fields of study, subject areas, disciplines and sectors that contributed to the gradual refinement of the five UK-based policy domains and identification of key trends within those domains. This was substantiated though consultation with the key informant advisers.

Appendix III: List of models/theories/frameworks by domain/field

Model/framework/theory	Domain/field	Reference
The scholarship of engagement: A taxonomy of five emerging practices	Higher education	Barker (2004)
The ecological university	Higher education	Barnett (2009)
Visualization of the potential impacts of social science research	Higher education	Bastow *et al.* (2014)
Scholarship reconsidered and the scholarship of engagement	Higher education	Boyer (1990, 1996)
New public social science	Higher education	Brewer (2013)
Model of public sociology and the public university	Higher education	Burawoy (2005, 2012, 2017)
Typology for university engagement activity	Higher education	Conway *et al.* (2009)
The engaged academic	Higher education	Cresswell and Spandler (2013)
Universities and the 'knowledge society'	Higher education	Delanty (2001)
New production of knowledge	Higher education	Gibbons *et al.* (1994)
The civic university	Higher education	Goddard (2009)
Dimensions of disciplinary knowledge and the place of activist scholarship	Higher education	Hale (2008)
The public university	Higher education	Holmwood (2011)
Knowledge exchange	Higher education	Hughes *et al.* (2011)
University as a public good	Higher education	Marginson (2007)
University of wisdom	Higher education	Maxwell (2012)
Inclusive research	Higher education	Nind (2014)
Cultures of science	Higher education	Nowotny *et al.* (2001)
Knowledge socialism	Higher education	Peters *et al.* (2012)
Dimensions of civil society participation in research	Higher education	Stahl *et al.* (2013)
The networked university	Higher education	Standaert (2012)
The physical university	Higher education	Temple (2014)
Diamond model of engaged scholarship	Higher education	Van de Ven (2007)

Model/framework/theory	Domain/field	Reference
Knowledge mediators	Higher education	Vostal and Robertson (2012)
The engaged university	Higher education	Watson *et al.* (2011)
The digital scholar and open scholarship	Higher education	Weller (2011, 2014)
Imperatives for engagement	Higher education	Wilson *et al.* (2014)
More-than-human participation in research	Higher education	Bastian (2013)
Models of public communication of science and technology	Science and technology	Brossard and Lewenstein (2010)
Co-productionist approach to engagement	Science and technology	Chilvers and Kearnes (2016)
Reflexive engagement	Science and technology	Chilvers (2013)
Framework for culture of science	Science and technology	Godin (2012)
Model of emergence (science communication as an event)	Science and technology	Horst and Michael (2011)
Critique in engagement	Science and technology	Irwin *et al.* (2013)
Orders of public engagement taxonomy	Science and technology	Irwin (2008)
The co-production of science and the social order	Science and technology	Jasanoff (2004)
Science engagement and social change	Science and technology	Jensen and Holliman (2016)
Four-phase model of social transformation	Science and technology	Jensen and Wagoner (2009)
Three perspectives on the public and their value for the analyst of public engagement	Science and technology	Mahony and Stephansen (2016)
Deliberative systems	Science and technology	Mansbridge *et al.* (2012)
The imagined lay person	Science and technology	Maranta *et al.* (2003)
Material participation (everyday publics)	Science and technology	Marres (2012)
Typology of practitioner engagement	Science and technology	Martin (2010)
Knowledge brokers	Science and technology	Meyer (2010)
Science in, for and with society	Science and technology	Owen *et al.* (2012)
Typology of science communication	Science and technology	Palmer and Schibeci (2014)
Typology of public engagement	Science and technology	Rowe and Frewer (2005)

Model/framework/theory	Domain/field	Reference
Engagement triangle	Science and technology	Sciencewise (2010)
Framework for responsible innovation	Science and technology	Stilgoe *et al.* (2013)
Stakeholder engagement	Science and technology	Stirling (2008)
Typology of knowledge brokering	Science and technology	Turnhout *et al.* (2013)
Three models of normativity in public participation in science and technology	Science and technology	Van Oudheusden and Laurent (2013)
Three modalities of scientific imaginaries of publics	Science and technology	Welsh and Wynn (2013)
Upstream model of public engagement	Science and technology	Wilsdon and Willis (2004)
Conceptualizing 'science' in public understandings of science	Science and technology	Wynne (2014)
Collaborative knowledge translation model	Public policy	Baumbusch *et al.* (2008)
Three-generations framework of knowledge integration	Public policy	Best *et al.* (2008)
Research-engaged schools	Public policy	Brown and Zhang (2016)
Knowledge exchange framework	Public policy	Contandriopoulos *et al.* (2010)
Consolidated framework for implementation research	Public policy	Damschroder *et al.* (2009)
'Power-in-interaction' as a framework for understanding engagement	Public policy	Davies *et al.* (2011)
Archetypes of practice in knowledge mobilization	Public policy	Davies *et al.* (2015)
Knowledge, dissemination and utilization framework	Public policy	Farkas *et al.* (2003)
Mindlines	Public policy	Gabbay and le May (2004, 2011)
The knowledge-to-action (KTA) cycle	Public policy	Graham *et al.* (2006)
Knowledge transformation through the KTA cycle	Public policy	Greenhalgh (2010)
Three-level model for patient involvement in research	Public policy	INVOLVE (2012)
PARIHS framework	Public policy	Kitson *et al.* (1998)
The critical realism and the arts research utilization model	Public policy	Kontos and Poland (2009)
Knowledge transfer	Public policy	Lavis *et al.* (2003)
Push, pull, linkage and exchange model	Public policy	Lavis *et al.* (2006)
Research knowledge mobilization model	Public policy	Levin (2004)

Model/framework/theory	Domain/field	Reference
Knowledge brokers	Public policy	Lomas (2007)
Three approaches to school-based research	Public policy	McLaughlin *et al.* (2004)
Participatory action knowledge translation model	Public policy	McWilliam *et al.* (2009)
Process-oriented definition of research utilization	Public policy	Morton (2015)
Practice research	Public policy	Nissen (2009)
Research-use continuum	Public policy	Nutley *et al.* (2007)
Shared decision making in health policy and practice	Public policy	Ocloo and Matthews (2016)
Approaches to working with users in research	Public policy	Rickinson *et al.* (2011)
Research mediation	Public policy	Sebba (2013)
The evidence ecosystem	Public policy	Shepherd (2014)
Two models of practitioner research	Public policy	Shaw and Lunt (2017)
Partnership ethics	Public policy	Silka (2008)
Co-production	Public policy	Stephens *et al.* (2008)
Interactive systems framework for dissemination and implementation	Public policy	Wandersman *et al.* (2008)
Three models of research use	Public policy	Walter *et al.* (2004)
Framework of the knowledge transfer process	Public policy	Ward *et al.* (2009)
NGO–academic interface and typology of collaborative research	International development	Aniekwe *et al.* (2012)
Impact of participation	International development	Beardon and Newman (2011)
Evidence principles for British NGOs	International development	BOND (2013)
Systemic action research	International development	Burns (2013)
Model of factors influencing the shape and level of science–NGO collaboration	International development	Čada and Ptáčková (2012)
Mode 3 knowledge production	International development	Carayannis and Campbell (2009)
Theory of participation	International development	Chambers (1994, 1997)
Southern theory	International development	Connell (2007)
Participation as a new tyranny	International development	Cooke and Kothari (2001)

Model/framework/theory	Domain/field	Reference
Typology of research for collaboration	International development	CORE Group (2008)
Knowledge in health research	International development	Cornish and Gillespie (2009)
University–NGO partnership model	International development	de Figueiredo *et al.* (2013)
Cognitive justice/epistemicide	International development	Sousa Santos (2007)
Key roles of NGOs in global health research	International development	Delisle *et al.* (2005)
Principles of credible research enquiry	International development	DFID (2013)
Policy-based evidence	International development	Du Toit (2012)
Evidence artefacts	International development	Eyben *et al.* (2015)
Community-based research/epistemicide	International development	Hall and Tandon (2017)
Approaches to collaboration	International development	Hanley and Vogel (2012)
Knowledge and evidence practices of NGOs	International development	Hayman *et al.* (2016)
Capacity-building for research demand	International development	Newman *et al.* (2012)
RAPID framework for research-to-policy uptake	International development	ODI/Court and Young (2004)
Engaged excellence	International development	Oswald (2016)
Knowledge for development	International development	Powell (2006)
Typology of research collaboration	International development	Roper (2002)
Progressive social change	International development	Shutt (2009)
Typology of NGO research	International development	Stone and Pratt (1994)
Collaborative perspectives and organizational relationships	International development	Sullivan and Skelcher (2002)
Cognitive justice	International development	Visvanathan (1997, 2009)
Community-based participatory research	Community development	Wallerstein and Duran (2003)
Dialogic co-inquiry	Community development	Banks *et al.* (2014)
Typology of university–community engagement	Community development	Bivens *et al.* (2015)
Systematic action research	Community development	Burns (2007)
University–community partnerships	Community development	Buys and Bursnall (2007)

Model/framework/theory	Domain/field	Reference
'Legacy' in interdisciplinary collaborative research	Community development	Facer and Pahl (2017)
Living knowledge/collaborative research	Community development	Facer and Enright (2016)
Logic model for representing community–university research partnerships	Community development	Fielden *et al*. (2007)
Non-academic research practice	Community development	Finnegan (2005)
The ontological politics of research in/on/with/by communities	Community development	Fransman (2017)
Networked communities	Community development	Gaved and Mulholland (2010)
A framework for institutionalizing community–university research partnerships	Community development	Hall *et al*. (2015)
Framework for auditing, benchmarking and evaluating university–public engagement	Community development	Hart *et al*. (2009)
Applying a COP approach to knowledge mobilization in community–university partnerships	Community development	Hart *et al*. (2013)
Typology of university–community approaches to engagement	Community development	Holland and Ramaley (2008)
Relational accountability in community–university partnerships	Community development	Kajner *et al*. (2011)
Public history	Community development	Kean and Martin (2013)
Sedimented histories	Community development	Lloyd and Moore (2015)
Knowledge flows in interdisciplinary and community-based research	Community development	Lutz and Neis (2008)
Community research for community development	Community development	Mayo *et al*. (2013)
Post-urban regeneration	Community development	O'Brien and Matthews (2016)
Hallmarks for defining CBR	Community development	Ochoka and Janzen (2014)
An African translation of community-based research	Community development	Van Wyk and Higgs (2012)
Two traditions of community-based participatory research	Community development	Wallerstein and Duran (2003)
Art as the production of knowledge	Arts and humanities	Barrett (2010)
The public value of the humanities	Arts and humanities	Bate (2011)
Beyond 'text methods' in co-produced research	Arts and humanities	Beebeejuan *et al*. (2014)
Reframing the public value of the humanities	Arts and humanities	Belfiore and Upchurch (2013)

Model/framework/theory	Domain/field	Reference
Research through practice in performance	Arts and humanities	Freeman (2009)
Impact of arts and humanities research	Arts and humanities	Levitt *et al.* (2010)
Beyond scholar-activism	Geography	Autonomous Geographies Collective (2010)
Resourcing scholar-activism	Geography	Derickson and Routledge (2015)
Conceptualization of impact based on co-production	Geography	Pain *et al.* (2011, 2014, 2015)
Ethics of knowledge production around social movements	Political science	Chesters (2012)
Activist research	Political science	Choudry (2015)
Movement relevant theory	Political science	Cox and Nilsen (2007)
Relational scholarship of integration	Management	Bartunek (2007)
Framework for enhancing the effectiveness/efficiency of research knowledge adoption/utilization	Management	Gera (2012)
Framework for analysis of university–industry knowledge exchange	Management	Hughes and Kitson (2012)
Co-produced research	Management	Jung *et al.* (2012)
Scholarship that matters (critique of the discourse of 'usefulness')	Management	Learmonth *et al.* (2012)
Reflexivity in the co-production of academic-practitioner research	Management	Orr and Bennett (2009)
Review of transdisciplinary research	Sustainability science	Brandt *et al.* (2013)
Typology of conceptualizations of knowledge processes	Sustainability science	Evely *et al.* (2012)
Typology of conceptualizations of knowledge exchange	Sustainability science	Fazey *et al.* (2013)
Partnership interest	Sustainability science	Hutchins *et al.* (2013)
Model for integration of knowledge	Sustainability science	Mauser *et al.* (2013)
Typology of stakeholder engagement in research	Sustainability science	Phillipson *et al.* (2012)